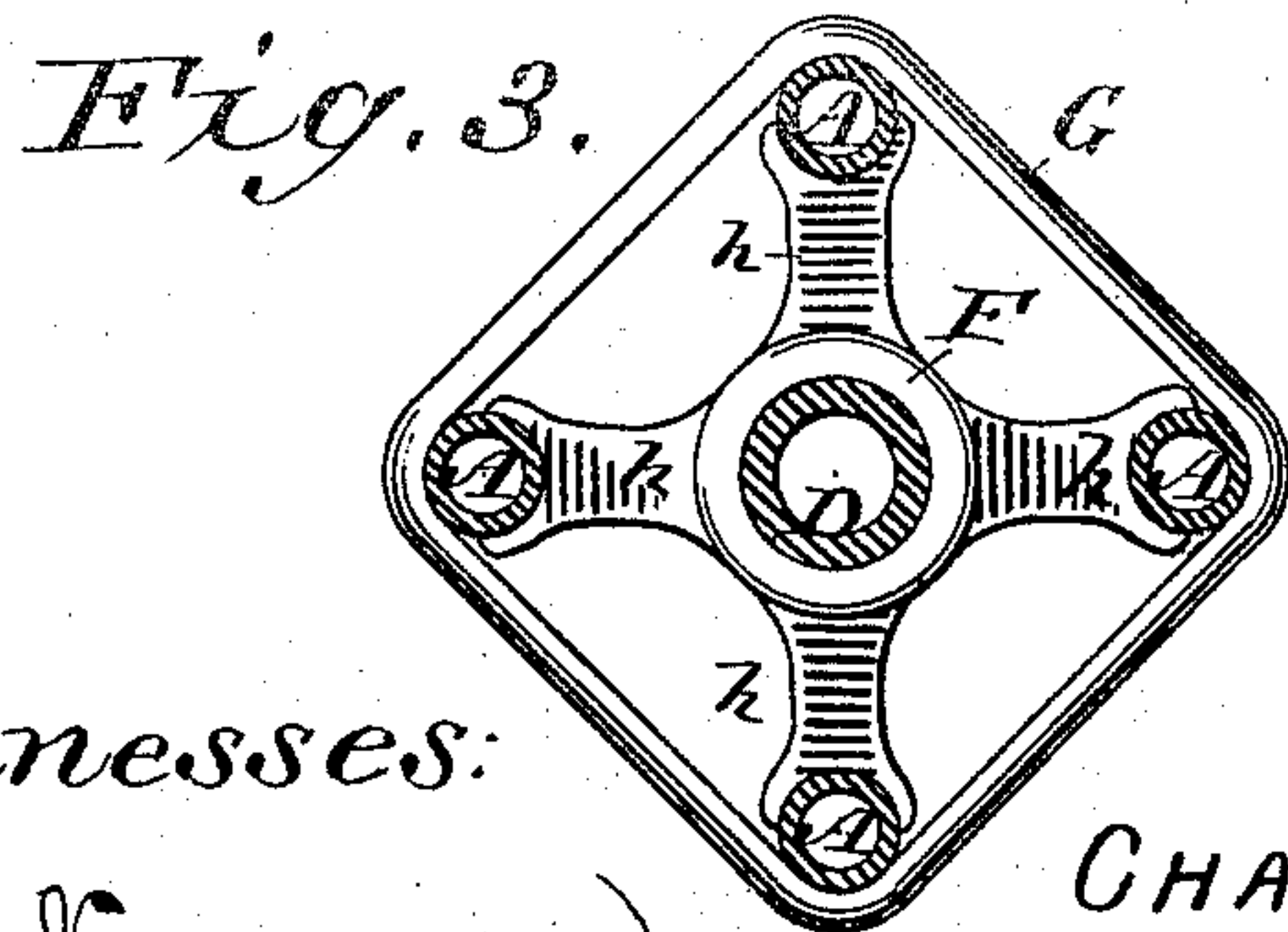
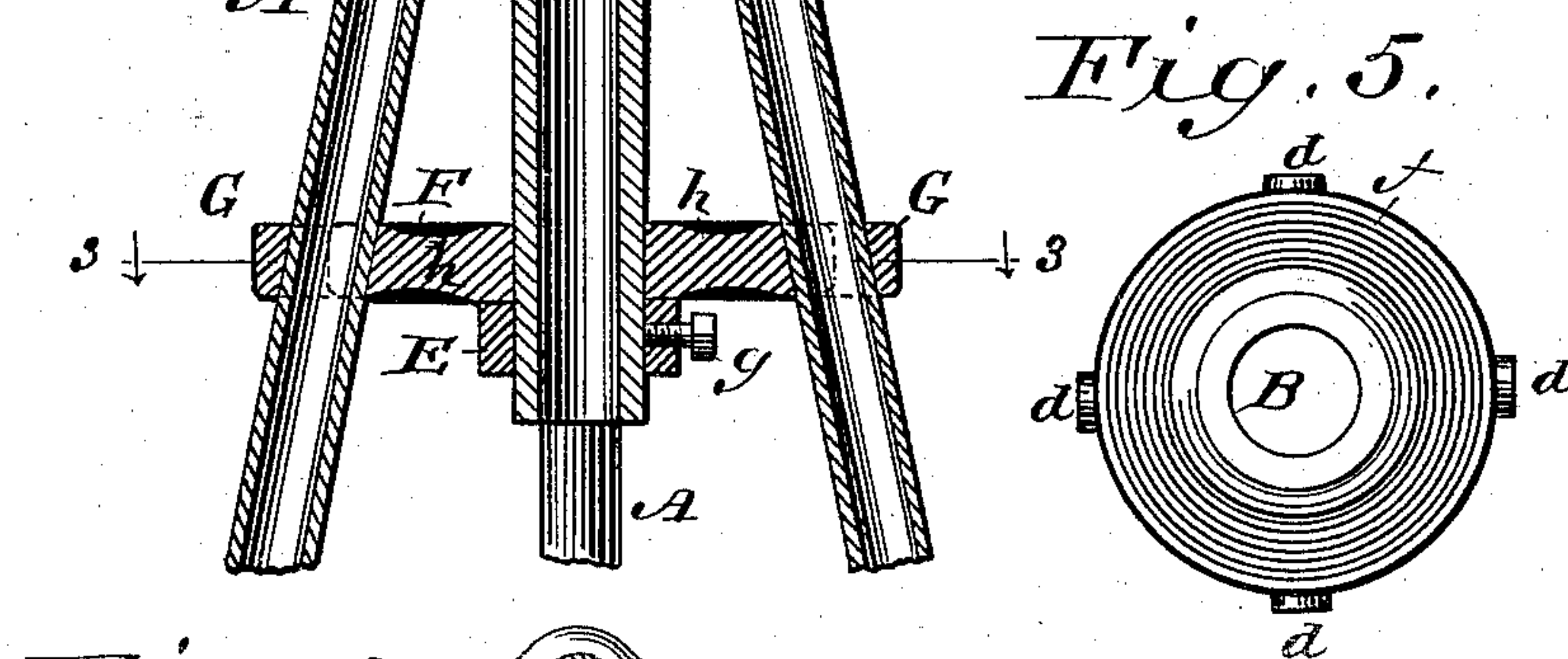
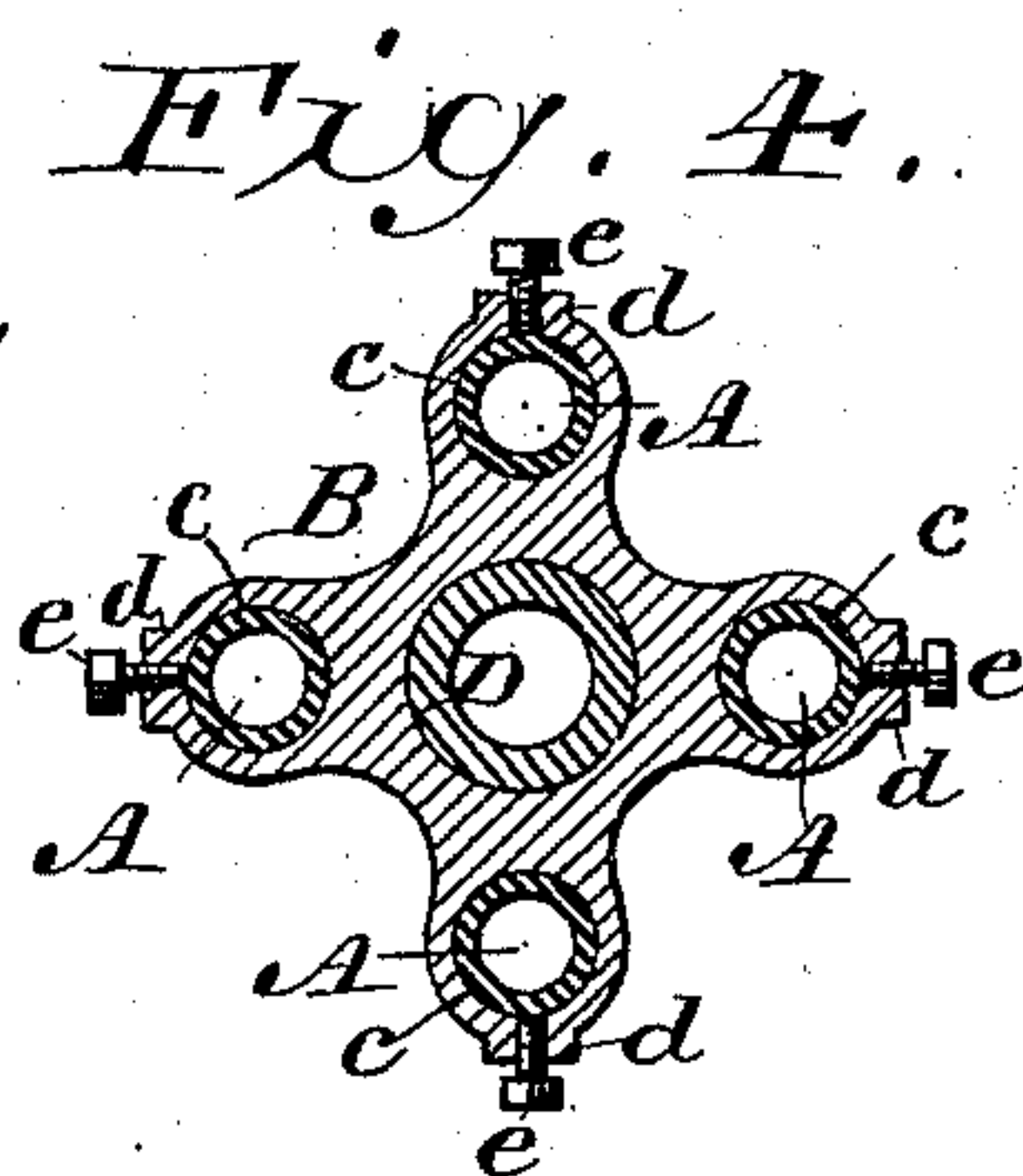
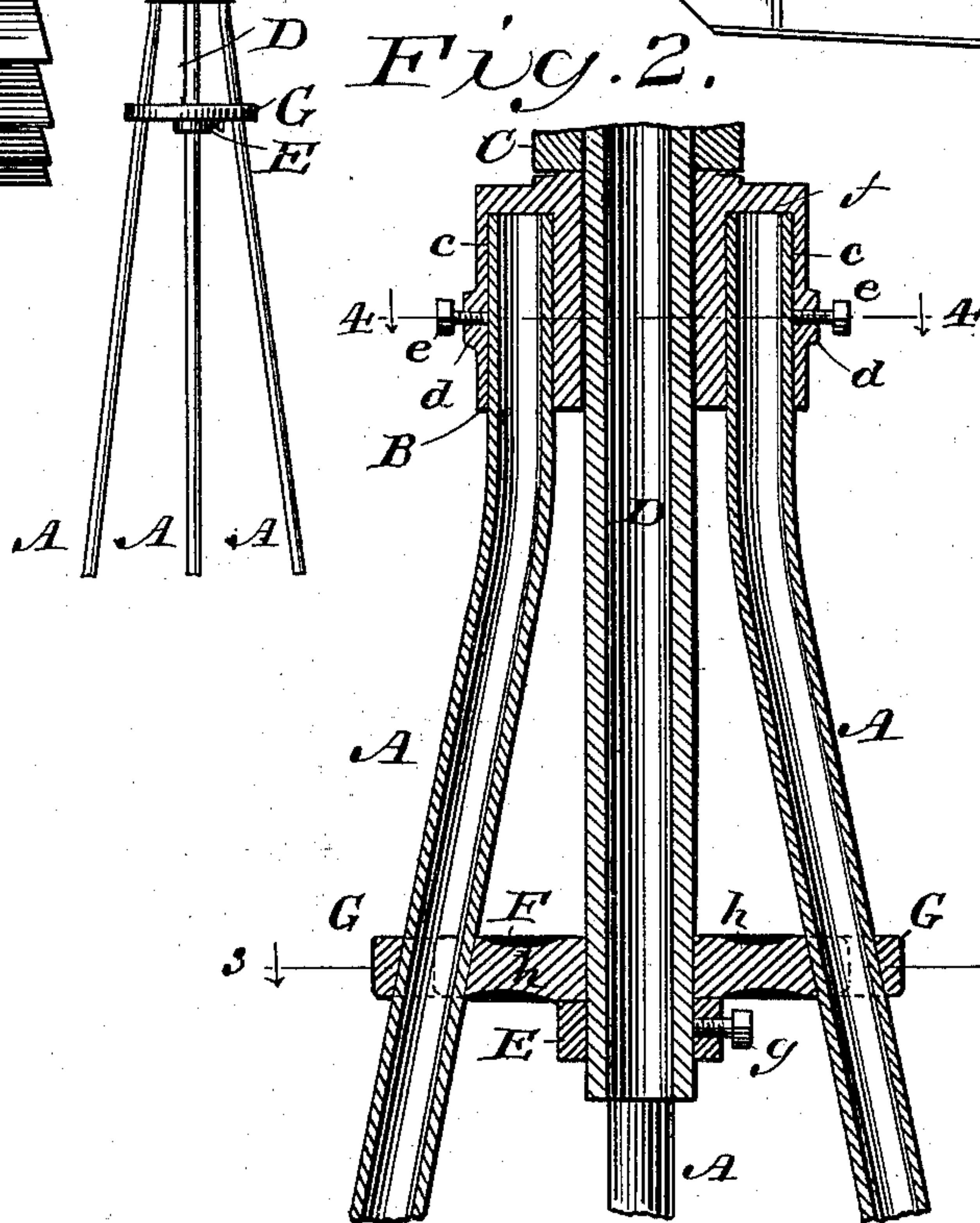
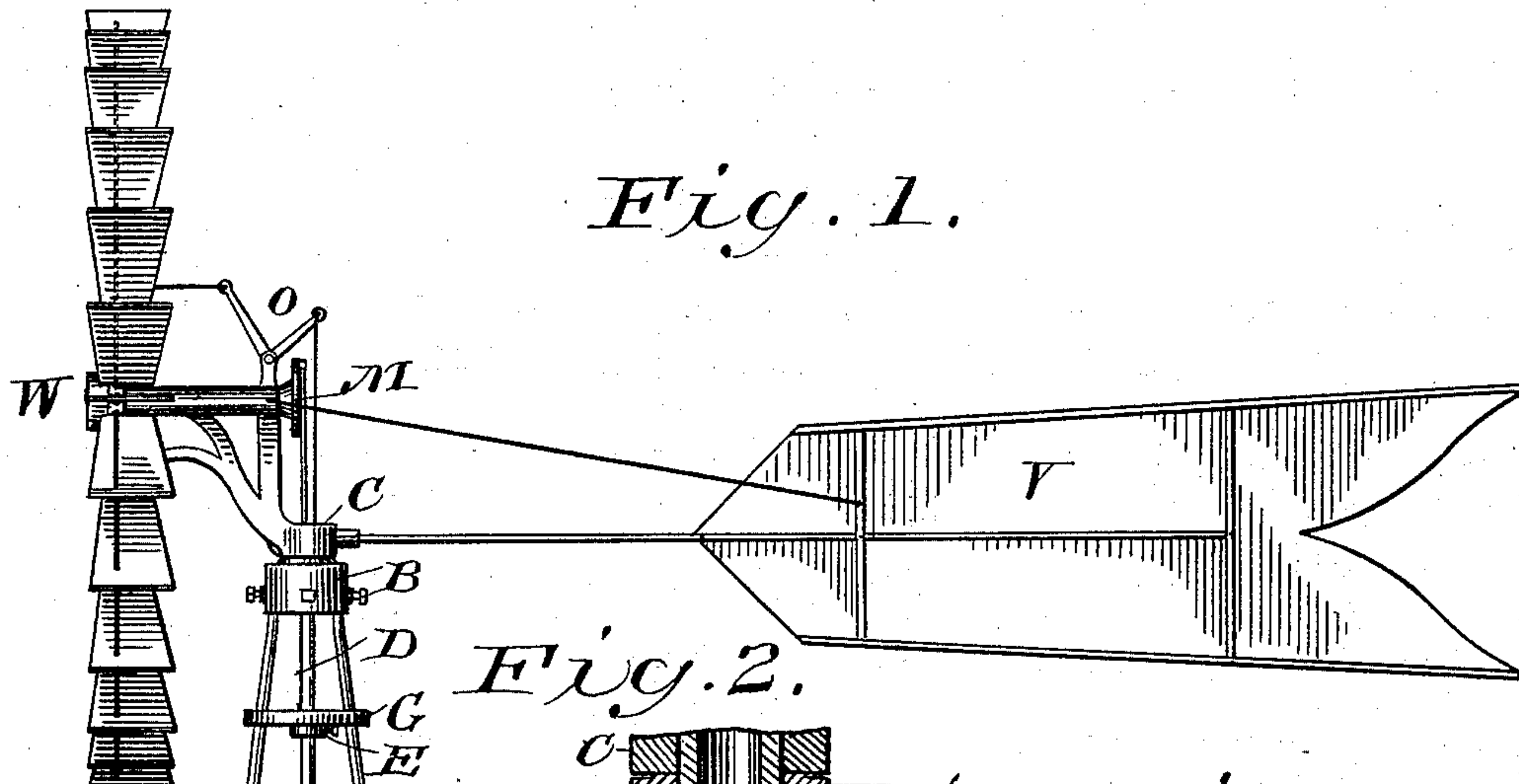


(No Model.)

C. B. PUTNAM.  
WINDMILL TOWER.

No. 406,470.

Patented July 9, 1889.



Witnesses:  
Al. C. Newman,  
E. S. Newman

Inventor.  
CHARLES B. PUTNAM,  
By his Attorney  
*L. E. Egan.*



# UNITED STATES PATENT OFFICE.

CHARLES B. PUTNAM, OF MARION, IOWA.

## WINDMILL-TOWER.

SPECIFICATION forming part of Letters Patent No. 406,470, dated July 9, 1889.

Application filed June 4, 1888. Serial No. 275,997. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES B. PUTNAM, a citizen of the United States, and a resident of Marion, in the State of Iowa, have invented a new and useful Improvement in Windmill-Towers, of which the following is a specification.

This invention relates to the upper terminals of iron windmill-towers, including the "turn-tables" or swivels upon which vertical wind-wheels turn to keep the face of the wheel opposed to the direction of the wind.

The primary object of the invention is to so unite tubular corner-posts at the apex of a skeleton tower as to fasten each in place to keep the tower from becoming twisted by torsional strain, and by the same means to form a solid and easily-adjusted turn-table. Additional objects of the same are to "stiffen" the corner-posts, and by the same means in part to form a second bearing for a pivot of any required length, and to fasten down the wheel-frame or main casting upon the turn-table.

The invention consists in certain novel combinations of parts whereby the above-named objects are accomplished, as hereinafter described and claimed.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings is an elevation of the upper terminal of an iron windmill-tower with a vertical wind-wheel mounted thereon. Fig. 2 represents an axial vertical section of that portion thereof to which this invention relates. Fig. 3 represents a horizontal section on the line 3 3, Fig. 2, with parts at the plane of section shown in elevation. Fig. 4 represents a horizontal section on the line 4 4, Fig. 2, and Fig. 5 represents a top view of the turn-table casting.

Like letters of reference indicate corresponding parts in the several figures.

My improved wind-wheel tower comprises converging tubular corner-posts A, of gas-pipe, which may be four in number, as shown, or three, five, or more, as desired. The upper ends of these posts are bent somewhat, so as to be approximately vertical and parallel with each other, and are united by an annular turn-table casting B, having a vertical cell

c, fitted to each post end in its appropriate position, and corresponding drilled and tapped bosses d, provided with set-screws e, by which the post ends are fastened in place. Above the cells c a circular turn-table f is formed upon the casting B, and upon this turn-table the pivotal surface of the wheel-frame or main casting C is seated. Said casting C is preferably cast upon the upper end of a tubular pivot D, of gas-pipe, two feet long, (more or less,) which projects downward through the central opening of said annular casting B, and is provided with a clamp-collar E beneath another annular casting F, which embraces the pivot near its lower end. The collar E is held in place by one or more set-screws g, and in turn affords vertical support to the casting F, which coacts therewith to hold the wheel-frame casting upon its seat. The casting F has radial arms h with indented ends corresponding with the respective posts, which are clamped against the same by an external band G, embracing the several posts, as seen in Fig. 3. The band is driven downward upon the inclined posts until the casting F is tightened in an effective position, and may be somewhat above or below the latter without impairing its efficiency.

The cellular portion of the casting B is preferably cut away between the cells c, as shown in Fig. 4, to lighten it, while its turn-table f is circular, as aforesaid, and is provided with concentric raised rings, as shown in Fig. 5; but these and other like mechanical details, together with details of shape and proportion, which are not essential to the described functions of the respective parts, form no part of my invention.

The wheel W, tail or vane V, motion-transmitting devices M, and feathering or operating devices O (represented in Fig. 1) likewise form no part of the present invention, and may be of any approved construction.

The body of the tower may preferably be constructed according to my invention patented February 8, 1887, (United States Patent No. 357,290;) but the present invention is applicable to any skeleton tower having converging corner-posts.

Having thus described my said improvement in windmill-towers, I claim as my inven-



tion and desire to patent under this specification—

1. In combination with a superposed wind-wheel frame turning in a horizontal plane and having a depending pivot, an annular turn-table casting having vertical cells open at bottom and corresponding drilled and tapped bosses provided with set-screws, and converging corner-posts having vertical upper extremities fastened in the respective cells by said set-screws, substantially as hereinbefore specified.

2. The combination, in a windmill-tower, of converging corner-posts having vertical upper extremities, an annular turn-table casting having vertical cells fitted to said post

extremities, and set-screws fastening the latter in said cells, a superposed wheel-frame casting having a depending pivot, an annular casting having radial arms with concave outer ends fitted to the posts within a converging portion of the tower, and a collar fastened on said pivot below the casting last named, substantially as hereinbefore specified.

3. The combination of the corner-posts A, turn-table casting B, wheel-frame casting C, tubular pivot D, collar E, casting F, and band G, substantially as hereinbefore specified.

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